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ABSTRACT

In an effort to evaluate the effects of "Sesame Street", 943 3-, 4- and 5-year-olds, including disadvantaged children from the inner city, advantaged suburban children, children from rural areas, and disadvantaged Spanish-speaking children, were tested by adults from the children's own neighborhoods. Results indicate that: (1) the children who watched the most learned the most; (2) the skills that received the most time and attention on the program were, with some rare exceptions, the skills that were best learned; and (3) the program did not require adult supervision for the children to learn. The children viewing at home showed gains as great as, and sometimes greater than, children who watched at school supervised by the teacher. Various disadvantaged groups made as much progress as advantaged children in learning from television. Measuring techniques developed for the study proved especially valuable when combined with the services of coordinators and testers who lived in the communities being tested. (MK)

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SESAME STREET SUMMATIVE RESEARCH:

SOME IMPLICATIONS FOR EDUCATION AND CHILD DEVELOPMENT

by

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We have been in charge of the Sesame Street summative research conducted by Educational Testing Service from the program's beginning. We have carried out a large scale evaluation of the first year's program and are currently analyzing data from an evaluation of the second year's program. A wealth of data and experience on the learning and assessment of preschool children has been generated over the past three years. In this presentation, we will present first a brief description of our work and of the results that have so far been made public. The major portion of this paper, however, will deal with some of the implications of this research for education and for research in child development.

We began our work in the summer of 1968, about a year before Sesame Street went on the air. Once the goals of the show had been established by Children's Television Workshop, we set about developing measuring instruments to assess whether Sesame Street was achieving with 3- to 5-year-old children what it had set out to achieve, and to assess what side-effects might be occurring. We pretested approximately 1,300 children in Boston, Massachusetts, Durham, North Carolina, suburban Philadelphia, Phoenix, Arizona, and a rural area in the northeastern part of California. The sample finally numbered 943 and included disadvantaged children from the inner-city, advantaged children from suburban areas, children from rural areas, and disadvantaged Spanish-speaking children. More of the disadvantaged children in the sample were black than white; most of the children were 4-year-olds although some were 3-year-olds and some were 5-year-olds; and more of the sample children viewed Sesame Street at home rather than at school, though we had both types of viewing conditions. All the tests of the children followed

the same basic format. The test materials were simple and were administered to the children by trained adults from the children's own neighborhoods. Information was also collected on each child's home background and how much he watched Sesame Street during the season. Where the child was viewing the show in his Head Start or nursery school classroom, the teacher was questioned in order to find out her reactions to the show. We also performed a content analysis of the show in order to find out the amount of time each goal was actually being taught on Sesame Street and what television techniques were being used to put across those goals. There is a lengthy report available from Teachers College Press, Columbia University, which gives in detail the methodology followed, the data, the results, and the conclusions. We will here attempt to provide a brief summary of the major results we found during the first year.

First, the children who watched the most learned the most. The amount of learning that took place, that is, the gains the children made between testing before and testing after watching Sesame Street increased in relation to the amount of time the children watched the program. While there was some self-selection factor in that children who knew more initially tended to watch more, nonetheless our results held even after this factor was discounted.

Second, the skills that received the most time and attention on the program itself were, with some rare exceptions, the skills that were best learned. An analysis of the content of the show

revealed, for example, that more time (about 14 per cent) was devoted to letter related skills than to any other single subject. It was in the areas of letters and numbers that the children's gains were most dramatic. In addition to acquiring skills that were directly and deliberately taught, it appeared that there was some transfer of learning. Some children learned to do things, like reading words and writing their names, that were not taught on the program.

Third, the program did not require formal adult supervision in order for the children to learn. The children viewing Sesame Street at home showed gains as great as, and in some cases greater than, children who watched in school under the supervision of the teacher. This finding has special significance in light of the fact that more than four-fifths of all 3- and 4-year-old children do not attend any kind of school and more than a quarter of all 5-year-olds do not. The major finding, that children learned more the more they watched, held true across age, sex, race, geographic location, socioeconomic status, and mental age, whether the children watched at home or at school. In all the major goal areas in which the children were tested, gains in learning increased steadily with increased amounts of viewing. We are not trying to suggest, of course, that Sesame Street was equally successful in promoting all of its educational goals. However, it was successful in most of the goals that it set for itself in the cognitive area. These cognitive goals included knowledge and skills of simple associations as well as much more complex

judgmental and evaluative cognitive areas such as are involved in sorting and classifying pictorial representations. In a few of the cases where the show was unsuccessful in achieving its goal, the major cause was an initial underestimation of children's prior knowledge and skill so that there was an initial ceiling effect apparent. We also discovered that learning was greater when skills were presented in a direct fashion rather than in an indirect fashion.

During the second year of Sesame Street, we went to two new locations, namely Los Angeles, California and Winston-Salem, North Carolina. Here we used a revised series of tests for the children reflecting revisions in the goals of Sesame Street and reflecting the results of our empirical work from Year I. We were able to achieve in these two sites much better control of experimental conditions. For example, in Winston-Salem we introduced cable in a random sample of homes. The controlled non-cable homes were unable to obtain Sesame Street because of the lack of an educational television station in that area. As well as this new group of children, we followed up 300 children from our first year study who lived in ghetto areas, who had not attended school during the first year, and who had watched Sesame Street in varying degrees, or in specific cases, had not watched at all during the first year. We were particularly interested in what happened to those children who went on to school, and about half of the children that we followed up did indeed go on to either kindergarten or first grade during the second year of the show. Unfortunately, we are not at liberty at this point to

divulge the results of the second year study either for the new group or the follow up group. There are two reasons for this. One is that a final report will not be presented to Children's Television Workshop until October. The second reason is that at this point, unfortunately, we have not gotten all the data through the computer yet. I think it is reasonable to say, however, that it would surprise us a great deal if the gloomy predictions of some critics of Sesame Street were found to be true. That is, some of the critics of Sesame Street have argued that its effect will be to create in children an attitude to school that is harmful. Children will be expecting the teacher to perform like Big Bird, if not like Oscar the Grouch. I'm not presenting any real results when I say that anecdotally it would be highly surprising if there were any such deleterious effects of Sesame Street observed. What we would like to stress during the remaining part of this brief talk are some major implications that we have noted from our work with Sesame Street and with 3- to 5-year-old children.

First, the learning of the 3-year-olds really surprised us. They made gains at least as large as the 4- and 5-year-olds with the result that at posttest time many 3-year-olds had learned and were performing better than comparable 4- and 5-year-olds who had not been Sesame Street viewers. This kind of overlap was not apparent at pretest. It was clear to us that many of the goals that traditionally are sought with 4- and 5-year-old children in preschool and even in kindergarten are perfectly attainable with 3-year-olds as well. It was not part of our research nor could

it have been, to ask the question whether it is worthwhile to achieve these same goals with 3-year-olds as we currently try to with 4- and 5-year olds. What we can say, however, is that if we were to try we would probably be successful. This leaves open then the question of whether one might consider increasing our levels of aspiration for children in their preschool education.

A second implication that can be drawn from what we observed concerns the fact that entertaining television was found to be a very useful educational medium. Now it is rather surprising but true that the motivational force of entertaining television has been used rarely in order to effect educational changes in children. We have, of course, a whole history of educational TV. I would suggest you yourselves look at a typical educational television program and you won't find much to excite you. The same is generally true for children. On the other hand, we also have a whole history, a generation or so now, of entertaining television and from that you will recall everything from Ding Dong School and Howdy Doody and the Mickey Mouse Club and the cartoons from Saturday mornings. One has to think rather hard as to what the educational content of most of the entertaining commercial television programs has been during this past generation. Now we have some knowledge as to the potential effects of the use of an entertaining commercial approach to television as an educational medium. We think, if all goes well for future development, that we might spend more time and effort on the use

of the airwaves which, after all, are public airwaves, on educating the children in an entertaining fashion. We all look with interest at, for example, the forthcoming development of The Electric Company, which will attempt to teach reading to 6- through 10-year-old children. We might also ask how long will it be before similar programs are developed for young adolescents or late adolescents in order to prepare them for high school diplomas and for beginning college.

Another major implication of our work was that various disadvantaged groups, groups that we normally regard as being potential failures in our regular school settings, were observed to progress as well as our advantaged groups when it came to learning from television. We are referring, of course, to disadvantaged children both black and white, to Spanish-speaking children, and, to name another minority group that is prone to suffer at least in their early educational years, boys. It could be that our regular institutions for education at public schools and parochial schools are basically feminist and middle-class institutions. It wouldn't surprise us since, after all, most of the teachers are middle-class females. Of course, it could also be that the methods of teaching are primarily dependent upon the kinds of behaviors that girls and middle-class children generally exhibit. If these things are true, then one can see a perfectly good rationale for the use of television and similar techniques to aid in the education of those children who traditionally have not gotten along well in conventional schooling.

There is still another aspect of our work which has implications for children's education and for studies of child development. It will be recalled that we did most of our work in ghetto areas among the poor. Whereas in ages now gone, it was possible for white, middle-class researchers to go to underprivileged areas and do their research, such is most unlikely today. Not surprisingly, people who live in ghetto areas are especially concerned with what research is attempting to do, with what the possible effects on their children might be, and with whether they and their children are being in some way exploited by the researcher. Our experience was that there was indeed a backlog of resentment in ghetto areas to conventional research work that has been done on their children.

In order to overcome this or, more positively, to ensure that our assessments were as valid as possible, we employed both as coordinators and as testers people who themselves lived in these communities. This had some rather important effects--for example, it meant that often we were working with mothers who had themselves received relatively little formal education. Virtually none had progressed beyond a high school education. However, they were able to relate to the chilren with whom they worked in especially good ways, and more importantly, they were able to gain access into the homes in which we wanted to work. Ghetto leaders realized that much of the money being spent on this research was going directly into payments to people living in the ghetto areas. The purposes of the research became readily apparent since the work was actually

being done, prepared, and given initial editing within the ghetto communities. Our best guess is that we could not have operated in the communities we did if we had taken a more traditional approach to field research.

A very pleasing side-effect of all of this developed with respect to our measuring instruments. You will recall the great difficulty that has been experienced over the years in developing precise, reliable, and valid measures of preschool-aged children's status. Of course, assessing change in status is even more difficult. Since we were working with relatively untrained people, it became obvious that we could not use the conventional measuring instruments for preschool-aged children. For example, quick changes in formats, different styles of questions, and the use of clinical subjective judgments by the tester all had to be discarded. Both in the long run and in the short run this was to our exceedingly great advantage. We were testing in the children's own homes and could not expect testers to carry an elaborate kit of toys and games; we were working with relatively unsophisticated testers; we were testing large numbers of children; the testing had to be conducted relatively quickly; we had over 200 items to cover a wide range of goal areas; we did not want to place improper demands upon the child's time and his powers of attention; and we were working in makeshift circumstances even though they were familiar circumstances as far as the children themselves were concerned.

The general technique of measurement that was adopted involved three basic steps. First, a graphic representation of one or more

objects or events was presented to the child. The representation was described to the child, "Here is a bear, here is a bear, and here is a bear." Finally the child was asked to respond, usually by pointing. "Show me the biggest bear." This technique was used in various ways, but certain principles were retained each time. As each picture was described to the child his response was not dependent upon his own interpretation of the picture unless his interpretation was itself being studied. Further, the child's response was not dependent upon his ability to verbalize unless the goal being assessed demanded verbalization as, for example, in the goal which said, "Given the printed letter, the child can provide the verbal label." It seemed to us to be unfair to very young children from disadvantaged backgrounds to test understanding by requiring verbalization by the child. Thus, if you want to know whether a child can classify objects by shape, it is simply not good enough to present an orange and an apple and ask a child to verbalize his understanding of the problem. For example, a child who can select from an array of variously shaped objects a tennis ball to go with the orange and apple may not necessarily be able to verbalize why he had made the correct response.

Given then this change of approach, partly motivated by the kind of people that would be doing our testing for us, we obtained highly reliable scores, with subtest reliabilities ranging in the 70's with overall reliabilities in the high 90's. Perhaps there has been for too long a mystique about the testing of young children which has precluded the obtaining of reliable scores and precluded the use of testers who are relatively untrained.

We do not know, of course, at this point what the effects of Sesame Street are in the short run when children enter school though we hope to have some partial answers to that in the near future. We certainly do not know what the long term effect of Sesame Street will be with respect to educational television, with respect to the education of children in kindergarten and first grade as the Sesame Street generation move into kindergarten and first grade. We have, however, noted a number of interesting implications for the field of education and for the field of research in child development and children's learning. We think our short run answers about the effectiveness of Sesame Street have been quite telling. We think that the implications that we have briefly presented here deserve further exploration, and we hope that the long term effects of Sesame Street are regarded as being of such importance that money will be forthcoming to provide adequate research over the next few years.